Missouri Department of
Health & Senior Services

Missouri Office of Rural Health
Biennial Report 2002-2003

Missouri Office of Rural Health
Primary Care and Rural Health Unit
Section for Community Health Systems and Support
Division of Community Health

RURAL HEALTH BIENNIAL REPORT TO THE GOVERNOR AND GENERAL ASSEMBLY

INTRODUCTION

The Missouri Office of Rural Health (MORH) was established by the 1990 General Assembly (192.604 RSMo) to, "assume a leadership role in working or contracting with state and federal agencies, universities, private interest groups, communities, foundations, and local health centers to develop rural health initiatives and maximize the use of existing resources without duplicating existing effort." In addition, the office must "serve as the primary state resource in coordinating, planning and advocating for the continued access to rural health care services in Missouri for the poor, the uninsured, the underinsured, the medically indigent, maternity, newborn, child care and the elderly". The authorizing legislation also requires the MORH to submit a biennial report of its activities and recommendations to the governor and members of the general assembly on or before November fifteenth of odd-numbered years. This report is submitted in compliance with that statute.

Missouri's Office of Rural Health (MORH) is located within the Primary Care and Rural Health Unit, Section for Community Health Systems and Support, Division of Community Health, Missouri Department of Health and Senior Services. MORH, in addition to the statutory roles, analyzes and disseminates rural health information, and conducts outreach activities and applied research to improve the health of rural Missourians.

GOAL OF THE MISSOURI OFFICE OF RURAL HEALTH

To improve health outcomes in rural Missouri.

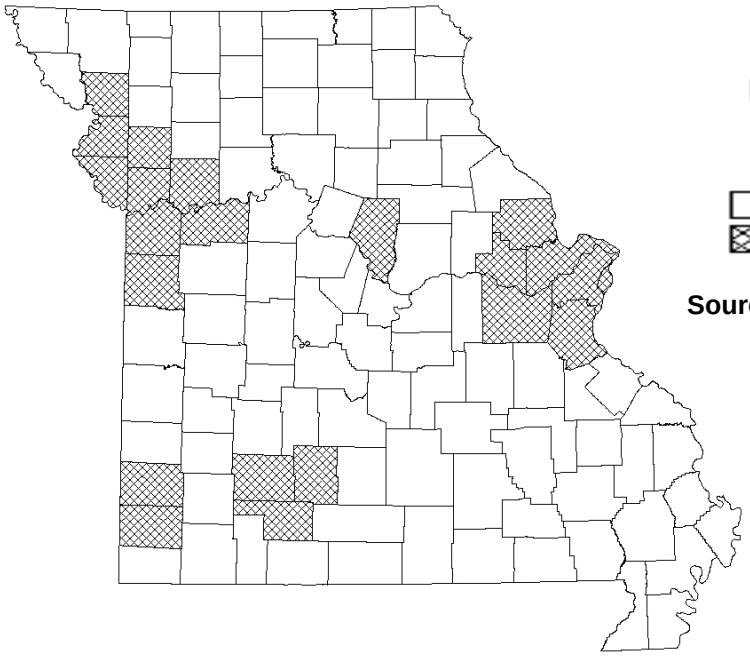
Strategies

- Develop rural integrated networks of health facilities, practitioners, and community leaders through partnerships and identification of opportunities and resources for collaboration and cooperation;
- Provide data, information, and assistance to policy makers, health providers, health educators and health administrators to improve health systems and outcomes;
- Increase awareness of and advocacy for rural health needs and policy issues in Missouri; and
- Be the liaison between academia, state government, professional associations and the general public.

CHALLENGES IN RURAL MISSOURI

Missouri is a state of many distinct geographic regions. These regions differ not only in terms of topography, but also culture, economy and resources. The variations include areas of the state considered part of the Mississippi Delta, Appalachian Region, eastern river towns, and western plains. Although the issues may be similar among the regions, the solutions may not be, requiring flexibility and creativity in development and implementation of interventions to improve health status.

For purposes of this report, rural Missouri will be defined as those 93 counties in the state that are outside of the Metropolitan Statistical Areas established in 1999 by the U.S. Bureau of the Census (Map 1). The rural counties make up 81 percent of the state's counties. The data and information provided throughout this report will be defined according to this classification.



Map 1.
Rural (non-Metropolitan)
Counties in Missouri

Rural (Non-Metropolitan)
Urban (Metropolitan Area)

Source: 2000 Census of the Population

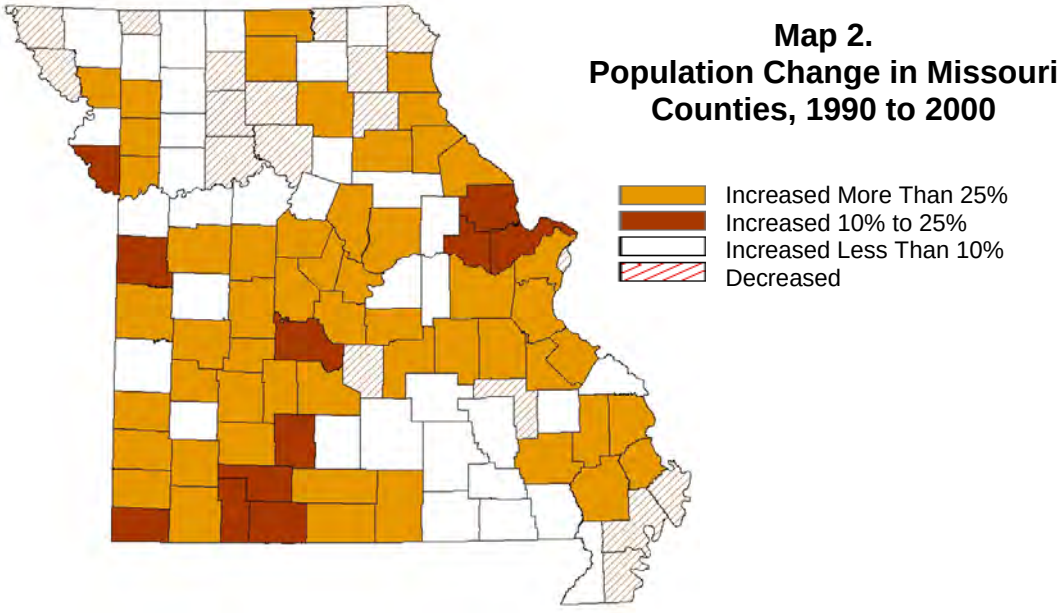
Changing Populations

Throughout the 1990's, the Missouri population living outside the city limits of any town grew more rapidly than the population residing in towns and cities. New housing developments were, and are being developed outside the city limits, as construction sites are available and land costs are somewhat lower. A significant amount of this growth is occurring in rural areas that border urban areas. In fact, 42 percent of the total increase in the state's population from 1990 to 2000 occurred in rural areas.

There has been significant population growth in many rural counties, especially in the Ozarks and Branson areas, generated largely by people moving to Missouri from other states. Although rural areas in general gained population, there were 17 counties and the city of St. Louis that lost population during the last decade (Atchison, Carroll, Chariton, Clark, Grundy, Holt, Iron, Knox, Linn, Livingston, Mississippi, New Madrid, Pemiscot, Pulaski, Schuyler, Shelby, and Worth). The rural counties that

experienced population loss were largely north of the Missouri River, however, there were losses in three Bootheel counties as well. Map 2 depicts the population change over the last ten years.

The fastest growing ethnic group in Missouri is the Hispanic population. Statewide there was a 92 percent increase in Hispanics between the censuses of 1990 and 2000. Much of this increase occurred in the Northeast and Southwest portions of the state, although there were notable gains across the state, including the Bootheel. There are indications that more minorities are moving into Missouri's rural counties, especially in the south central area of the state. The changes facing rural communities in terms of languages and culture are compounding problems around inadequate infrastructure and resources.



Map 2.
Population Change in Missouri Counties, 1990 to 2000

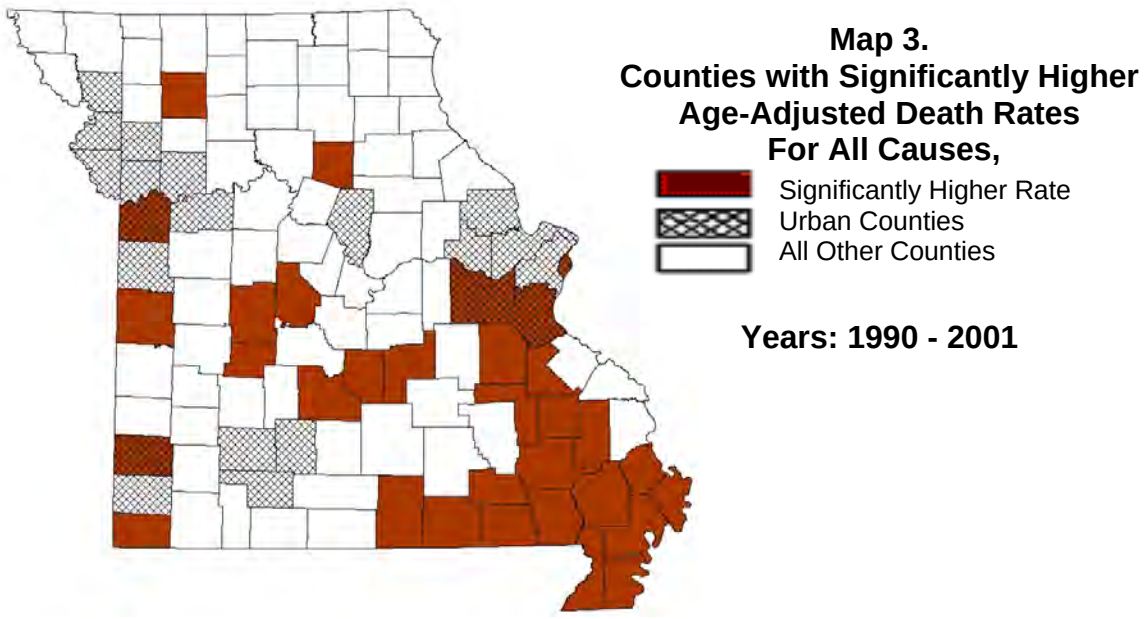
Health Status

Health status indicators illustrate the differences between the rural areas of the state and the metropolitan areas. Age-adjusted rates are used throughout this report. Age-adjusting a rate is a way to make more accurate comparisons between groups with different age distributions. For example, a county having a higher percentage of elderly people may have a higher rate of death or hospitalization than a county with a younger population, merely because the elderly are more likely to die or to be hospitalized. The same distortion can happen when we compare races, genders, or time periods. Age adjustment can make the different groups more comparable.

The maps in this section depict the selected causes of death according to the quintile of the individual county's rate. A quintile is simply one-fifth of a list of counties ranked from the highest to the lowest according to their respective death rates. Since Missouri has 115 counties (including the City of St. Louis), there are 23 counties in each quintile. In counties where the numbers of events (e.g. deaths) are small, the county may fall into the highest or lowest quintile on the basis of a few events, even if the underlying true rate is not particularly high or low. For the purposes of this report, quintiles one and two are labeled as higher than the state rate, quintile three is labeled equal to the state rate and the remaining quintiles, four and five, are labeled as lower than the state rate.

All Causes

The age-adjusted rates for many of the health status indicators are often much worse for rural areas than for the entire state or for urban areas. Rural areas tend to have higher death rates for most of the leading causes of death. The following map (Map 3) shows the counties with the death rates for all causes that are statistically significantly higher than the state as a whole. Of the 32 counties with rates significantly higher, 27 are rural. It is important to note that 62 percent of the rural counties with rates higher than the state death rate for all causes are in the southeastern part of the state. The counties include: Bollinger, Butler, Carter, Dunklin, Howell, Iron, Madison, Mississippi, New Madrid, Oregon, Pemiscot, Ripley, Scott, St. Francois, Stoddard, Washington, and Wayne. Also, all but two of the counties with significantly higher death rates (Randolph and Daviess) are located south of the Missouri River.



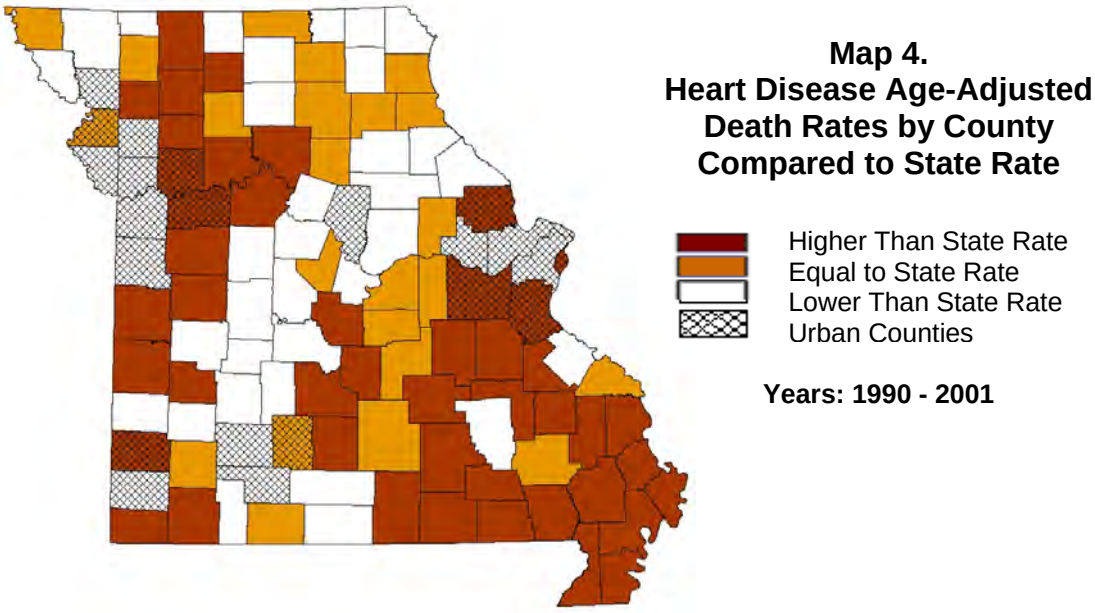
For the purpose of this report, comparison between urban and rural counties for deaths due to heart disease, stroke, pneumonia and influenza, motor vehicles related accidents, alcohol and substance abuse, liver disease, suicide, diabetes, kidney disease, and for socioeconomic factors are made. Furthermore, the two upper quintiles (e.g., higher than and statistically significantly higher than state rate) and the two lower quintiles have been combined in the map presentations. Rural counties with rates statistically significantly higher than state rate are listed in the text of the report and presented in Appendix 1 by county for each indicator described.

Heart Disease and Stroke

Heart disease and stroke are leading causes of death in Missouri and across the nation. Based upon an analysis of the past three years, the state rates for deaths due to heart disease and stroke shows a statistically significant decrease. Despite this decline, rural areas continue to have higher death rates for heart disease and stroke than do the urban areas.

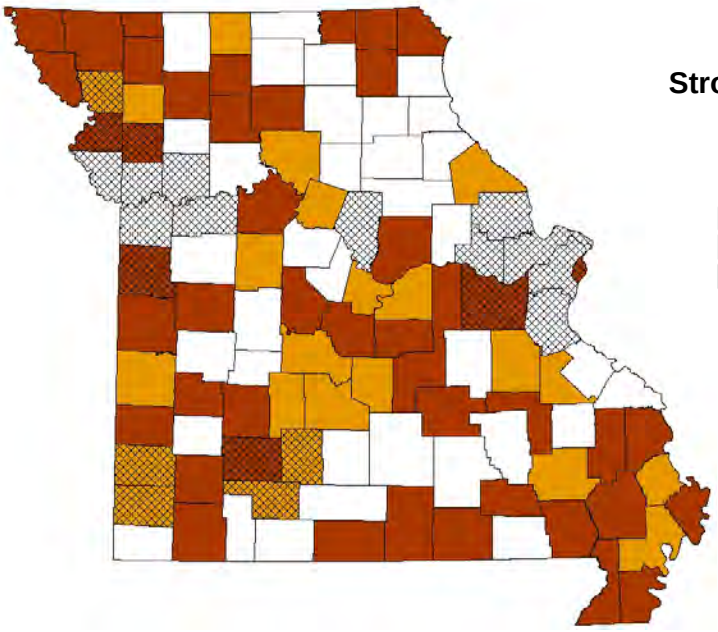
Eighty-two percent of the counties with age-adjusted death rates for heart disease significantly higher than the state's rate were rural. The rural counties include: Bollinger, Butler, Cape Girardeau, Carroll, Carter, Cedar, Daviess, Dunklin, Harrison, Henry, Howell, Iron, Johnson, Laclede, Mississippi, New Madrid, Oregon, Pemiscot, Pulaski, Ripley, St. Francois, Saline, Scott, Stoddard, Vernon, Washington, and Wright. The counties classified as urban and having significantly higher heart disease death rates were Franklin, Jasper, Jefferson, Lafayette, Ray counties and in St. Louis City.

Over half, (51%) of the rural counties in Missouri had rates higher than the state rate for deaths due to heart disease, of which the vast majority are located in the southeastern district. Yet for urban counties, only 36 percent had a death rate higher than the state average. Map 4 depicts the distribution of counties by the age-adjusted death rates for heart disease.



Map 4.
Heart Disease Age-Adjusted Death Rates by County Compared to State Rate

As with heart disease, stroke is another leading cause of death that disproportionately impacts rural Missouri. Between 1990 and 2001, the stroke related deaths in rural Missouri were statistically significantly higher in 24, or one-fourth, of the rural counties, compared to the state as a whole. The rural counties include: Barry, Bollinger, Butler, Cape Girardeau, Daviess, Dent, Dunklin, Gasconade, Grundy, Henry, Holt, Howell, Knox, Lawrence, Maries, Miller, Mississippi, Nodaway, Oregon, Pemiscot, Phelps, Scotland, Stoddard, and Worth. Only five urban areas have rates significantly higher than the state rate (Buchanan, Cass, Franklin, Greene counties and St. Louis City). The concentration of the counties with the highest rates is evident in Map 5.



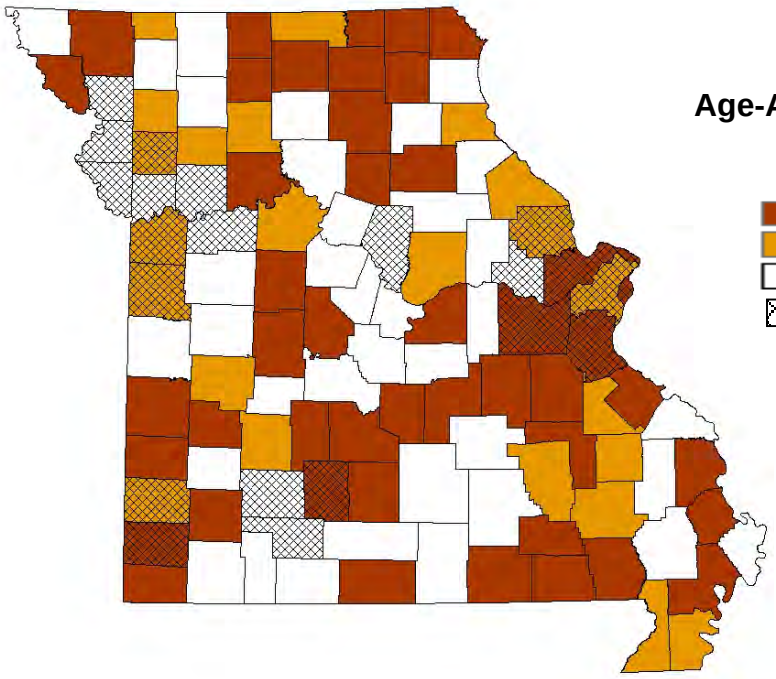
Map 5.
Stroke Age-Adjusted Death Rates
by County
Compared to State Rate

Higher Than State Rate
Equal to State Rate
Lower Than State Rate
Urban Counties

Years: 1990 - 2001

Pneumonia and Influenza

Rural counties accounted for over 85 percent of the counties with pneumonia and influenza deaths exceeding the state rate. This rate is an indicator of not only a large elderly population but also a lack of access to primary and preventive care. Influenza vaccination has been up to 90 percent effective in preventing influenza in young healthy adults and 30 to 40 percent effective among frail elderly persons. Increased access to, and utilization of primary and preventive care could reduce deaths due to these diseases. Map 6 portrays the county comparison for this indicator.



Map 6.
Pneumonia and Influenza
Age-Adjusted Death Rates by County
Compared to State Rate

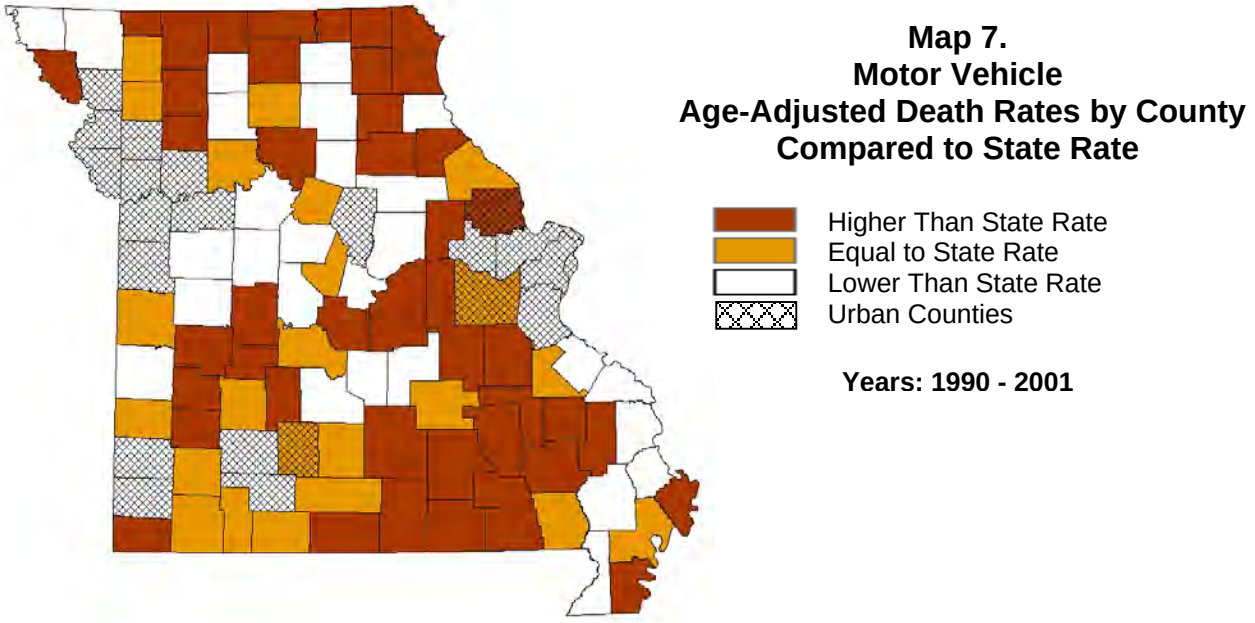
Higher Than State Rate
Equal to State Rate
Lower Than State Rate
Urban Counties

Years: 1990 - 2001

Motor Vehicle Deaths

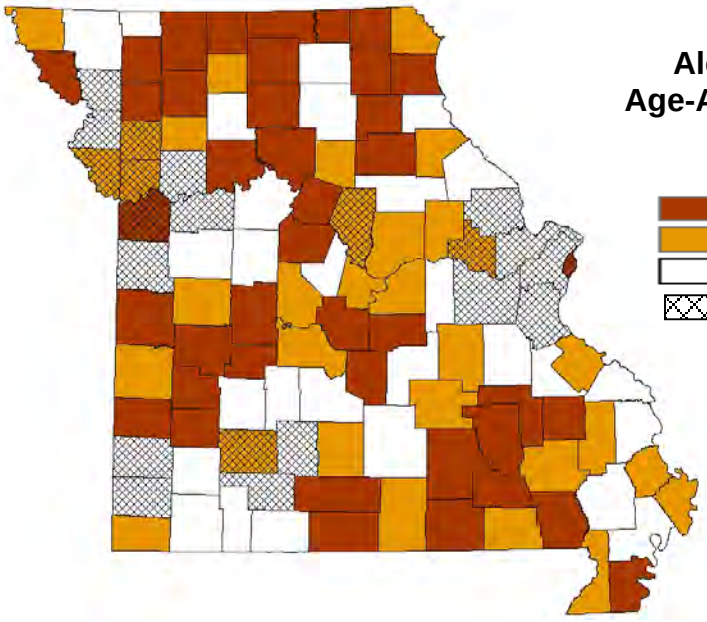
One leading cause of death that is adversely affected by characteristics most associated with rural areas is motor vehicle deaths. The rural highway system consists mostly of two lane roads, often heavily traveled by large trucks, especially in those areas with extensive swine, poultry, logging or mining industries. Additionally, the emergency medical services (EMS) in rural Missouri tend to have less and older equipment, more area to cover, and more problems finding qualified health care providers. Medicare has recently decreased reimbursements for EMS, further stressing the service system. These infrastructure issues, coupled with the long distances and travel times between accidents and medical facilities, and other risk factors, pose serious challenges for rural Missouri. It should be noted that between 1990 and 2001, the rates of motor vehicle deaths were higher in 87 percent of Missouri's rural counties than in urban counties or the state as a whole. Only one county classified as urban (Lincoln) had a rate from motor vehicle deaths that was in the high rate category.

It is important to note that death rates for motor vehicle accidents are increasing significantly, unlike many other health status indicators. The age-adjusted death rates for motor vehicle accidents are reflected in Map 7.



Alcohol and Substance Abuse

Associated with motor vehicle death rates is the rate of deaths due to alcohol and substance abuse. This is a health status indicator that gives insight not only to physical health, but to mental health status as well. Although the differences in the rates are statistically significantly higher in only three areas (Jackson County, St. Louis City and Schuyler County), the rates in 49 counties are higher than the state rate, 47 of which are rural counties (Map 8).



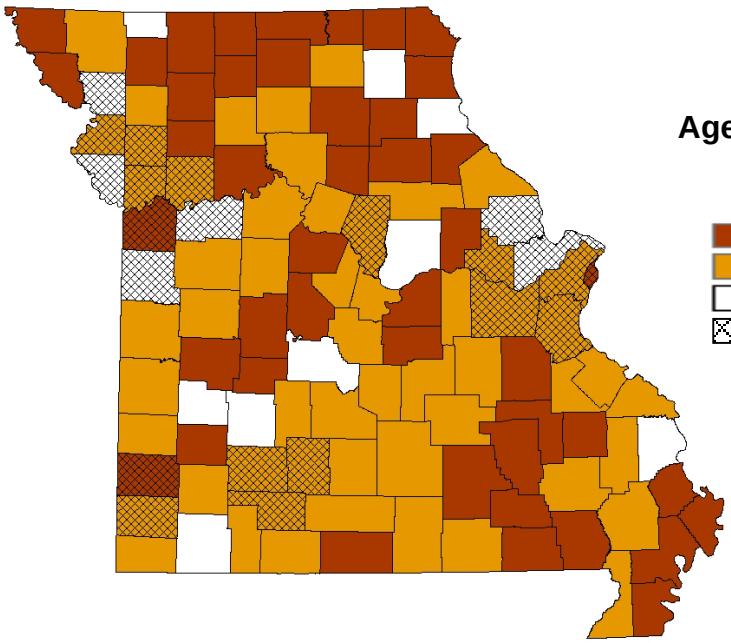
Map 8.
Alcohol and Substance Abuse
Age-Adjusted Death Rates by County
Compared to State Rate

Higher Than State Rate
Equal to State Rate
Lower Than State Rate
Urban Counties

Years: 1990 - 2001

Liver Disease

Liver disease is another condition linked with alcohol abuse. Alcoholic cirrhosis of the liver is often the cause of death, though chronic hepatitis is also included. The differences in the death rates for liver disease are statistically significantly higher in only six rural counties (Butler, Carter Hickory, New Madrid Pemiscot and Schuyler) and three urban areas (Jackson and Jasper counties and St. Louis City). The rates in 45 counties are higher than the state rate, 42 of which are rural counties, representing 93 percent of those counties (Map 9).



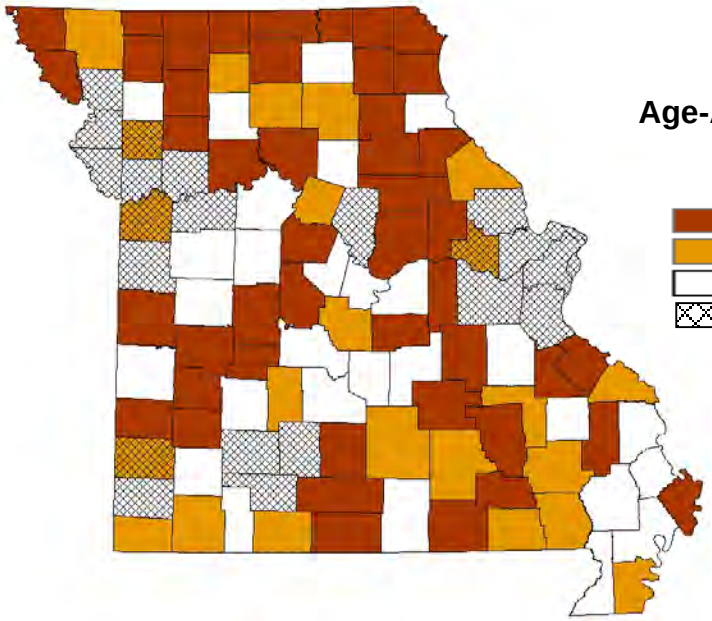
Map 9.
Liver Disease
Age-Adjusted Death Rates by County
Compared to State Rate

Higher Than State Rate
Equal to State Rate
Lower Than State Rate
Urban Counties

Years: 1990 - 2001

Suicide

Another indicator of the mental health needs within rural Missouri is the rate of deaths due to suicide. From 1990 to 2001, 80 percent of all the state's rural counties had suicide death rates that exceeded the state's rate, although not all are considered statistically significantly higher. All of the 46 counties with suicide death rates in the first and second quintile are rural. Map 10 shows the comparison rates for deaths due to suicide in Missouri counties based on statistically significant differences.



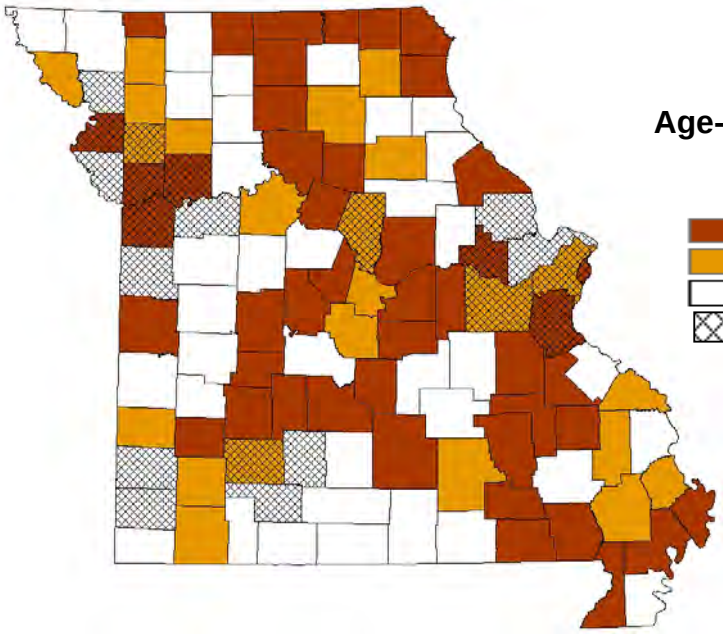
Map 10.
Suicide
Age-Adjusted Death Rates by County
Compared to State Rate

Higher Than State Rate
Equal to State Rate
Lower Than State Rate
Urban Counties

Years: 1990 - 2001

Diabetes

The current trend for the rates of death due to diabetes, unlike many other health status indicators, is increasing. There are 47 counties with rates that are higher than the state rate, of which 40, or 81 percent, are rural. Nineteen of the counties are statistically significantly higher, with the majority (14) in rural areas. The rural counties with death rates statistically higher than the state rate are: Bates, Benton, Butler, Dallas, Iron, Lewis, Linn, Madison, Randolph, Reynolds, Ripley, Schuyler, St. Francois, and Texas. The counties with higher diabetes death rates than the state are shown in Map 11.



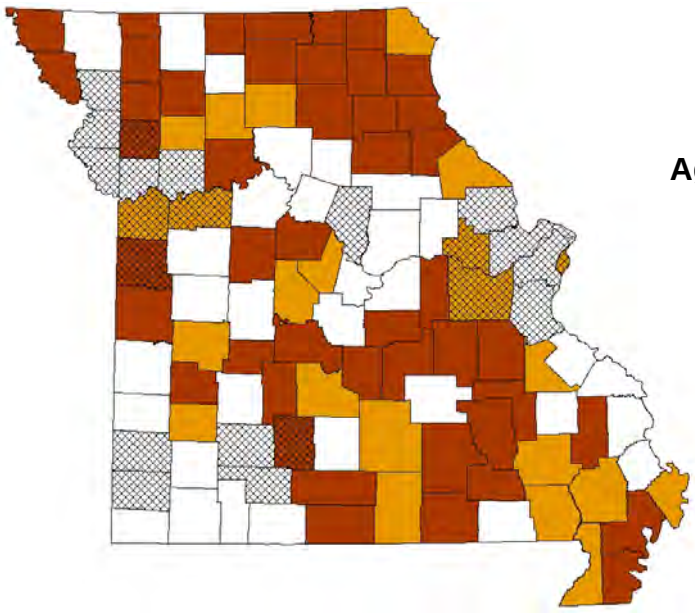
Map 11.
Diabetes
Age-Adjusted Death Rates by County
Compared to State Rate

Higher Than State Rate
Equal to State Rate
Lower Than State Rate
Urban Counties

Years: 1990 - 2001

Kidney Disease

Kidney disease is a disease condition often linked with hypertension and diabetes and includes nephritis, nephrosis, and nephrotic syndrome. Most of the deaths in this category are attributed to renal failure. Although the differences in the death rates for kidney disease are statistically significantly higher in only 24 counties, 20 are rural. Moreover, 55 of the 62 counties with rates higher than the state rate are rural. The rural counties with rates significantly higher are: Adair, Bates, Camden, Carter, Cedar, Crawford, DeKalb, Gasconade, Gentry, Hickory, Iron, Knox, Pemiscot, Pettis, Pulaski, Schuyler, Scotland, Shannon, Sullivan, and Washington. Map 12 shows the distribution of kidney disease death rates in Missouri counties.



Map 12.
Kidney Disease
Age-Adjusted Death Rates by County
Compared to State Rate

Higher Than State Rate
Equal to State Rate
Lower Than State Rate
Urban Counties

Years: 1990 - 2001

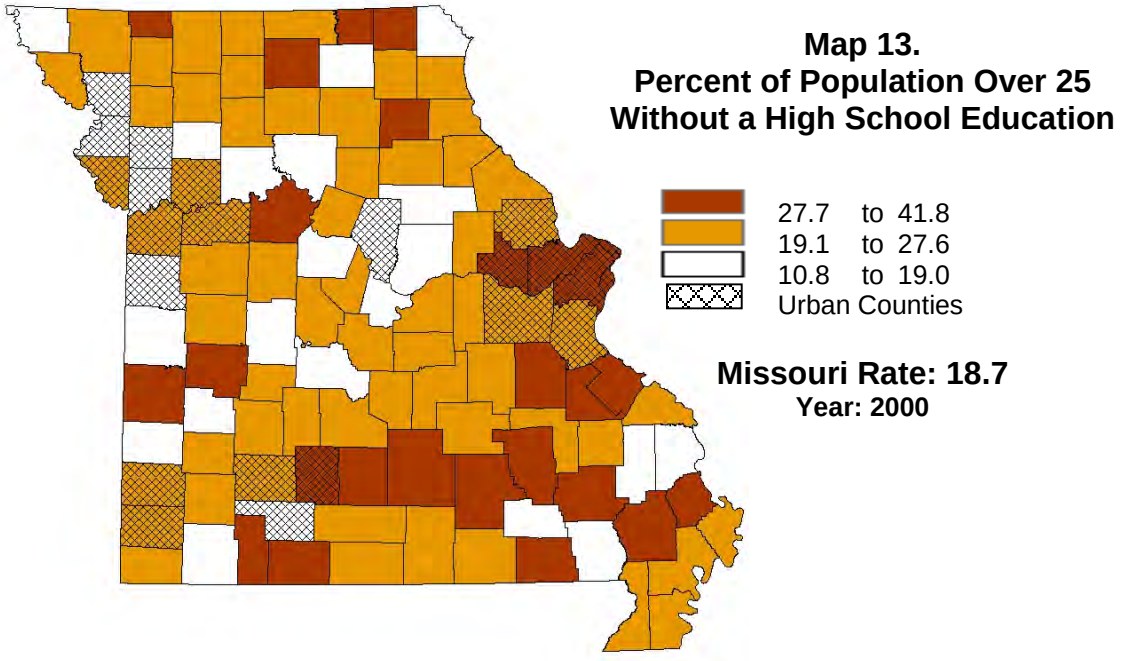
There are additional health status indicators that reflect the health disparity between urban and rural populations, e.g., cancers, unintentional injuries, poisonings and smoking-attributable conditions. Many of these health status indicators are amenable to change, given the development of effective, evidence-based interventions, effective partnerships, and adequate financial and informational resources.

Education and Economics

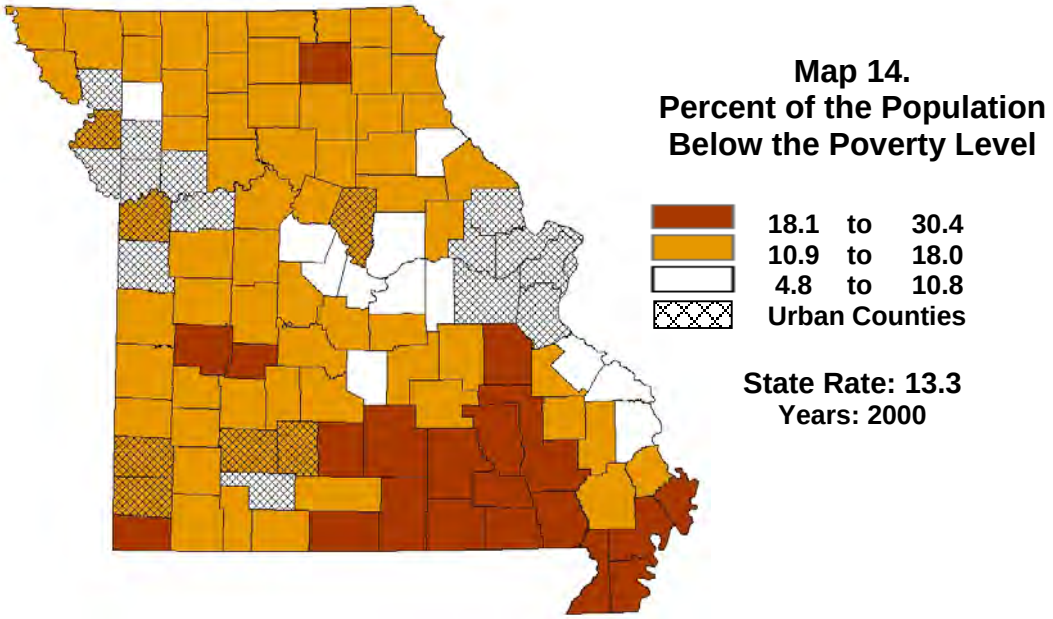
Rural areas of the state and the nation have historically had lower income and education levels than urban areas. This trend continues to date. Although advances have been made in both educational attainment and income over the past decade, the variations between rural and urban areas persist.

Educational attainment, or lack thereof, in rural areas remains problematic. The lack of a skilled and educated workforce is a barrier for many rural communities trying to recruit new, technically intensive industries. Education is also a variable associated with healthy lifestyles and avoidance of unhealthy habits. Examples of this are regular exercise and utilization of preventive medical care as opposed to use of alcohol or drugs, smoking or sedentary lifestyle. An indicator for lack of educational attainment is the percent of the population over 25 years of age, without a high school diploma, and is depicted in Map 13.

Of the 89 counties with percent of population over 25 without a high school diploma exceeding the state rate, 79 are rural. Forty-four counties have 25 percent or more of their adult populations without a high school diploma, 42 of which are rural and includes: Audrain, Benton, Bollinger, Butler, Carter, Cedar, Crawford, Dallas, Dent, Douglas, Dunklin, Gasconade, Hickory, Howell, Iron, Laclede, Madison, Maries, McDonald, Miller, Mississippi, Montgomery, Morgan, New Madrid, Oregon, Ozark, Pemiscot, Perry, Reynolds, Ripley, Saline, Scott, Shannon, St. Clair, St. Francois, Ste. Genevieve, Stoddard, Sullivan, Texas, Washington, Wayne, and Wright.



The impact of the level and extent of education is realized when looking at the poverty rates for rural Missouri counties. The data show that a vast majority of rural counties, 83 percent, have a higher percentage of the population living below the federal poverty level than the state as a whole. Forty percent of the persons living in poverty live in rural areas, although only 32 percent of the total population is rural. This statistic translates into over 260,000 rural Missourians living in poverty. Given the economic impacts of 2001 and 2002, these estimates of poverty under-represent the extent of poverty in the state. Map 14 portrays the percent of population below the federal poverty level.



Variations in educational attainment and income are markers of socioeconomic inequality and are associated with variations in health and mortality risk. While the impact of socioeconomic inequality varies, the overall impact remains - affecting access to health care services and overall health status. Persons with less than a 12th grade education and/or with incomes below the federal poverty level are less likely to seek preventive health care services. Early intervention into care is known to positively impact the life quality and expectancy of persons with chronic disease conditions.

Recognizing all of the challenges facing rural Missouri, MORH has embarked upon a multiple strategy approach, utilizing evidence-based interventions, resources and tools to address the complex issues. The strategies are detailed in the next section.

ACTIVITIES, PROGRAMS AND IMPACTS

The MORH, when established by the General Assembly was given the mandate to "provide a central information and referral source and serve as the primary state resource in coordinating, planning and advocating for the continued access to rural health care services in Missouri for the poor, the uninsured, the underinsured, the medically indigent, maternity, newborn, child care and for the elderly." The main duties of the MORH, as seen at that time, consisted of education, monitoring and working with other

agencies, promoting and encouraging the use of innovative health care services and advanced communications technology. The MORH takes this responsibility seriously and in the past two years has expanded its capacity to meet these directives.

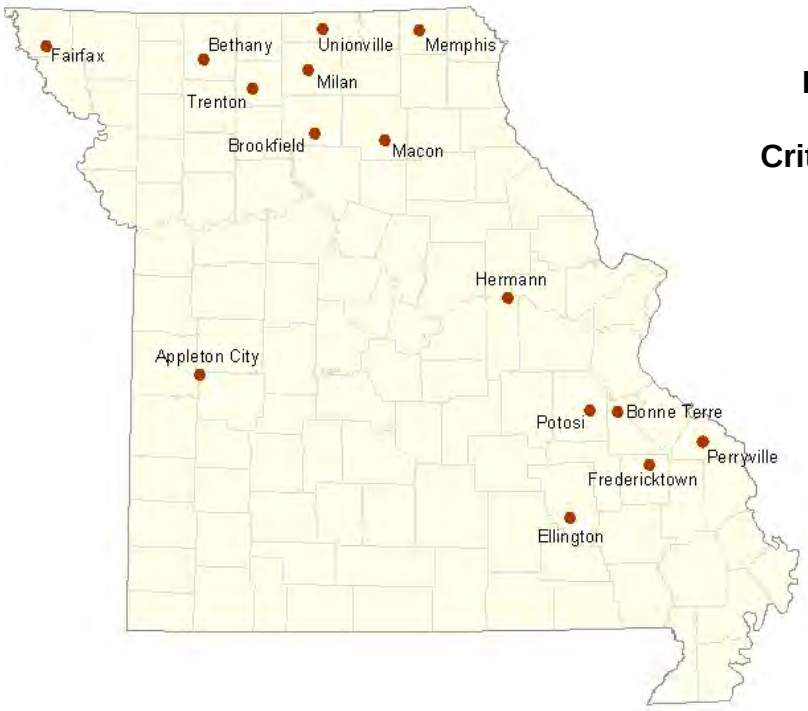
Over the past two years, MORH has expanded operations, largely due to increased resources, both informational and financial. The federal Office of Rural Health Policy and the Centers for Medicare and Medicaid Services have provided resources to the MORH to help improve health care delivery systems in rural Missouri. Additionally, state sponsored programs, in collaboration with MORH, have helped increase the health care professionals and facilities in rural areas, enhancing both health care access and the economic health of the communities involved. The results of the efforts of MORH and its partners are detailed in the following section. This section will describe not only the program activities and changes that have occurred, but will also estimate the financial impact the activities and directed resources have had on rural communities.

Medicare Rural Hospital Flexibility Program

The Medicare Rural Hospital Flexibility Program (MRHFP) is designed to sustain access to high quality healthcare services in rural Missouri. This program allows rural communities to maintain access to health care services through the development of Critical Access Hospitals (CAHs) and rural health networks. A CAH is an acute health care facility that provides emergency; outpatient and short stay inpatient services, and is linked to full service hospitals and other providers in a rural health network. A CAH may have up to 25 beds for both acute and skilled nursing level care. The advantage provided to facilities converting to a CAH is an enhanced (cost-based) reimbursement system for Medicare billings, including inpatient, outpatient services and EMS. This is extremely important as these areas have higher concentrations of Medicare-dependent, elderly populations.

In state fiscal years 2002 and 2003, MORH provided over $670,000 in MRHFP grant funds in financial support and services to CAHs and rural facilities considering transitioning to a CAH. During this time period, two additional CAHs were certified, quality improvement programming provided, and equipment and training for hospital staff were provided. Estimates on the total economic impact of these funds are over 1.5 million dollars. A large part of the economic impact of this program is in the increased reimbursements from Medicare to the hospitals. These increased revenues are necessary for the continued operation of the facility and will impact revenues and services within the communities, thus improving the economic health of the CAH communities.

Map 15 shows where the location of the designated CAHs in Missouri.



Map 15.
Facilities That Have Converted to Critical Access Hospitals

Year: As of 2003

Small Rural Hospital Improvement Program

Special emphasis in 2002 and 2003 has been on small rural hospitals. These facilities were seen by the federal Office of Rural Health Policy (ORHP), as potentially at risk for difficulty around specific management/operation issues. The issues of concern were the implementation of the Health Insurance Portability and Accountability Act (HIPAA), development and enhancement of Quality Improvement (QI) programming and implementation of the Prospective Payment System (PPS). To proactively address these issues, the ORHP instituted the Small rural Hospital Improvement (SHIP) Grant Program. SHIP provides funding for costs related to the aforementioned issues. To be eligible for these funds, a hospital must be: (1.) small, defined as 49 available beds or less, as reported on the hospital's most recently filed Medicare Cost Report; (2.) rural, defined as located outside a Metropolitan Statistical Area (MSA), or located in a rural census tract of a MSA as determined under the Goldsmith Modification or the Rural Urban Commuting Areas; and (3.) hospital is defined as a non-Federal, short-term, general acute care facility. There is no requirement for matching funds with this program.

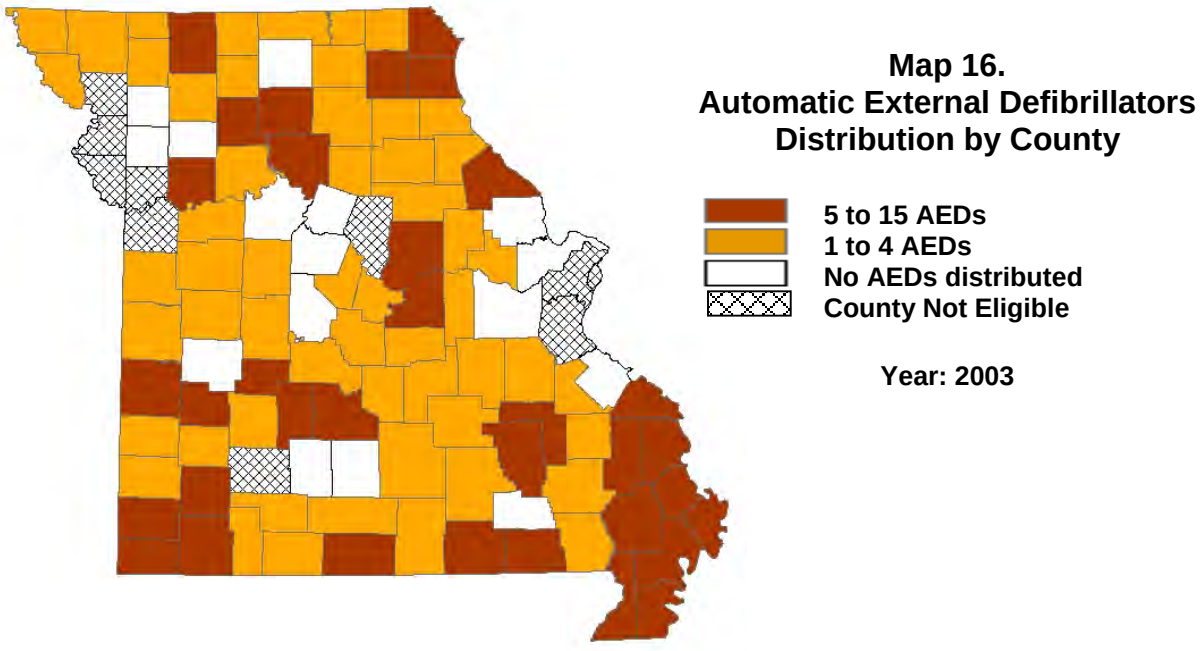
The first project period for the grant, 10/1/02 – 9/30/03, provided $9,765 to each of the 29 eligible hospitals in Missouri. In project period 10/1/03 –9/30/04, $9,256 will be awarded to 30 eligible hospitals. The majority of these funds are used to purchase technical assistance, services, training and information technology. To help maximize purchasing power through economies of scale, the MORH encouraged and assisted eligible hospitals to form consortia and pool their grant funds to purchase the needed services.

Rural Access to Emergency Devices Grant Program

Each year, approximately 250,000 Americans die from out-of-hospital cardiac arrest – a condition where the heart suddenly stops beating effectively and is unable to pump blood throughout the body. Automatic External Defibrillators (AED) are small, easy-to-use devices that provide an electric shock to restart a heart that has suddenly stopped beating. Many rural communities are far from hospitals. First responders such as police and fire personnel are usually the first on the scene of a cardiovascular emergency. Equipping and training first responders in the use of AEDs may be the most effective practice to stabilize cardiac arrest patients and allow time to get them to the hospital for advanced treatment, thus improving health outcomes.

To accomplish this task, the federal ORHP instituted the Rural Access to Emergency Devices (RAED) Grant Program. This program provides funding to purchase automated external defibrillators (AEDs) for rural communities and to provide training in its use and maintenance. The MORH, in partnership with the Bureau of Emergency Medical Services, MDHSS, applied for funding and jointly established a statewide distribution plan.

The state will be distributing 380 AEDs utilizing grant funds awarded in 2002 and 2003. Recipients are first responders without AEDs, including ambulance services with basic life support ambulances, fire and rescue departments and county sheriff departments. To assure up-to-date certifications in CPR, stroke care and familiarity with the AED purchased by the state, training will be provided to all recipients prior to distribution. Future AED purchases will be subject to the availability of federal funds. The counties with first responder agencies receiving AEDs through the MORH distribution plan for 2003 and 2004 are shown on Map 16.



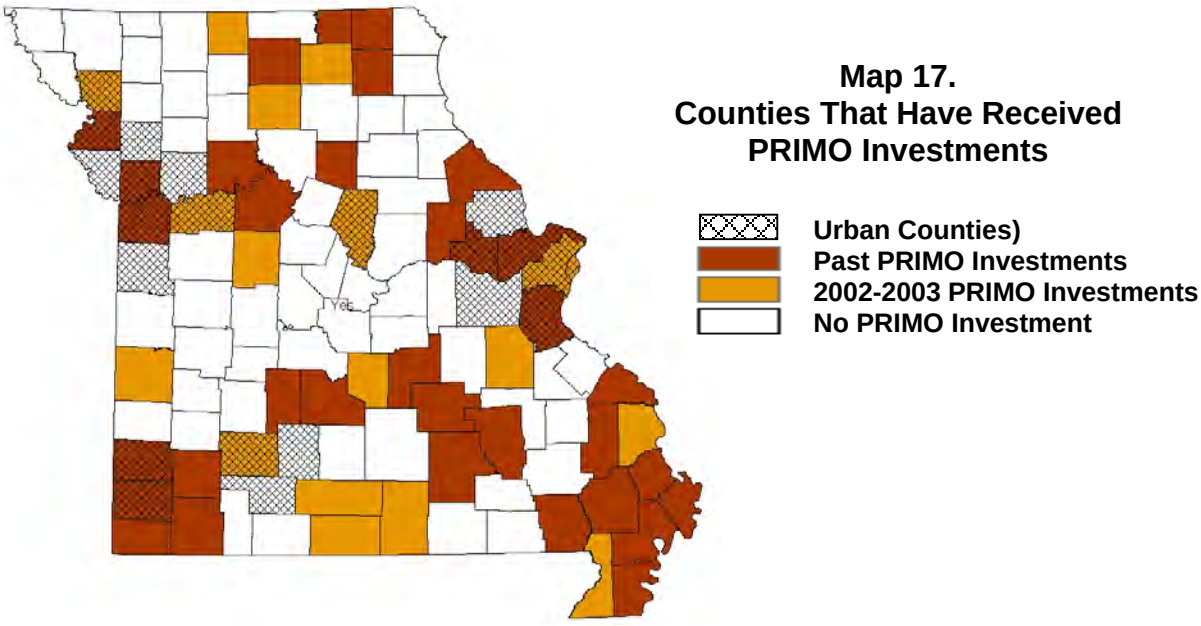
Map 16.
Automatic External Defibrillators Distribution by County

Health Care Delivery System Development

Assurance of health care delivery systems that provide high quality, accessible, primary medical, dental and mental health services and are economically sustainable, are essential to the survival of rural communities. To assist communities in reaching this goal, MORH has worked with the Health Care Delivery System Development component of the Primary Care Resource Initiative for Missouri (PRIMO).

In state fiscal years 2002 and 2003, $1,474,000 was invested in rural communities by PRIMO/MORH. Services provided were primarily medical and dental health care services in 15 separate rural communities. The investments included adding capacity to provide services to over 70,000 rural individuals, many of who had little or no access to those services previously.

The rural counties with communities receiving PRIMO investments include Cape Girardeau, Douglas, Dunklin, Howell, Mercer, New Madrid, Ozark, Pettis, Phelps, Pulaski, Putnam, Schuyler, Stoddard, Sullivan, and Washington Counties. More than two million dollars in ongoing annual federal grants to the community health centers in Douglas, Howell, Mercer, Ozark and Sullivan Counties is attributed to the PRIMO investment and support provided. Map 17 shows the counties with communities that have received PRIMO investments.



In addition to the specific community investments, PRIMO made statewide investments. The investments were made in statewide organizations and institutions to facilitate early recruitment of students pursuing primary health care careers through the PRIMO 'pipeline', to establish clinical training opportunities in rural and underserved areas, to develop pre-admissions programs and to provide communication systems for medical students and resident physicians in remote, rural locations. A total funding of $2,318,354 went directly to the organizations/institutions. An additional $3,500,000

was distributed to students in the form of student loans. This impacts a community by reducing the funds that 'leave' to pay for education in another community (usually urban) and providing funds to training institutions, which positively impacted the economics of the educational institutions' communities.

Recruitment and Retention

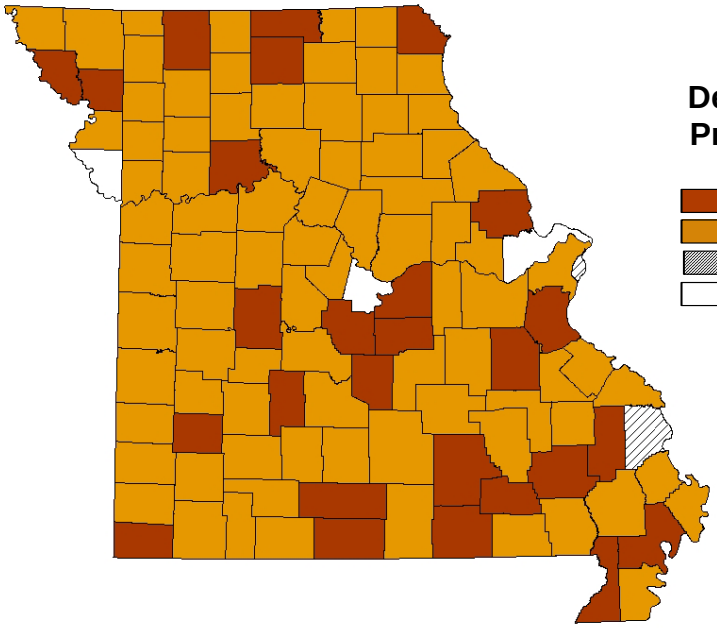
According to the Journal of the American Medical Association, "(m)edical educators and policy makers can have the greatest impact on the supply and retention of rural primary care physicians by developing programs to increase the number of medical school (students) with background and career plans that make them most likely to pursue these career goals. Curricular experiences and other factors can further increase these outcomes, especially by supporting those already likely to become rural primary care physicians." [1] What that means for Missouri's rural communities, is the best chance for finding and keeping rural health care practitioners, whether physicians, nurses, dentists or mental health care practitioners, is by 'growing our own'. It has been the policy of the MORH and the Primary Care and Rural Health Unit to build capacity across the state to identify, encourage and provide financial support to individuals from rural, underserved communities, to pursue health care careers, and to build capacity in the community, in order to provide a place for the professionals to practice upon completion of their education.

There are several programs working to improve health professional recruitment and retention in rural areas. While many of these programs focus on specific health professionals and areas of need, the MORH has the capacity to inform and facilitate resource allocations to enhance health care services in rural Missouri.

Access to primary health care services has been improving in rural Missouri. Although the number of federally designated Health Professional Shortage Areas (HPSA) has increased, the types of HPSAs are changing. Geographic HPSAs are based on the ratio of primary care physicians to the general population, while Low-Income HPSAs are based on the amount of care provided to Medicaid and uninsured patients. In the past ten years the number of Geographic HPSAs has decreased in rural Missouri by over 17%, even with the corresponding population increases.

Map 18 illustrates the current Primary Care HPSA distribution for the two types of HPSA designations in Missouri.

[1] Critical Factors for Designing Programs to Increase the Supply and Retention of Rural Primary Care Physicians Howard K. Rabinowitz, MD; James J. Diamond, PhD; Fred W. Markham, MD; Nina P. Paynter, BS JAMA. 2001;286:1041-1048.



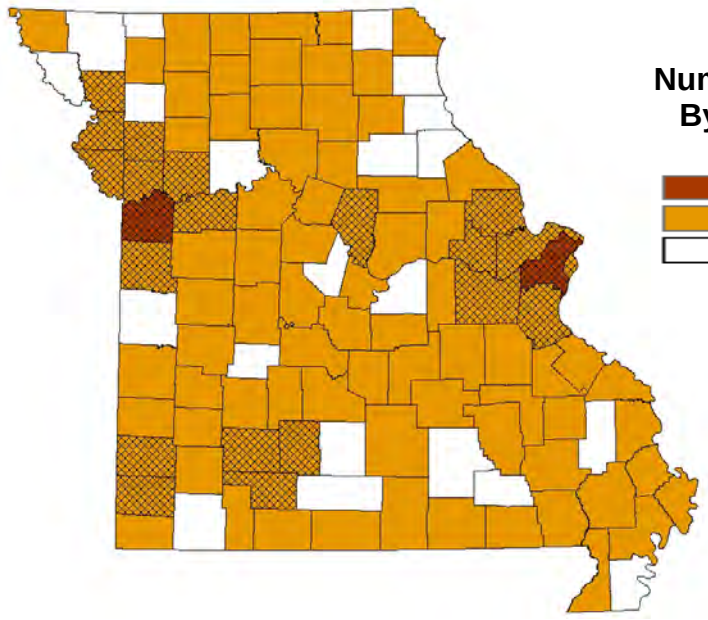
Map 18.
Designations as Primary Care Health Professional Shortage Areas (HPSA)

Geographic HPSA
Low-Income HPSA
Scheduled for Withdrawal
Not Designated

Year: 2003

In cooperation with the Primary Care Resource Initiative for Missouri (PRIMO), the MORH has been involved in the recruitment and placement of health professionals for underserved rural Missouri communities. As of 2002, PRIMO added primary and preventive dental health students as eligible loan recipients. Currently, the PRIMO scholars include eight recipients in dental school, two in pre-dental undergraduate school and one in the dental hygienist program.

For the 2003 academic year, 59 percent of the PRIMO supported students are from rural areas. Of the students from rural, underserved areas, 70 are pursuing medical careers and eight are attending dental school. The distribution of the counties of origin for all PRIMO supported students, from the inception of the loan program to date, are shown in Map 19.

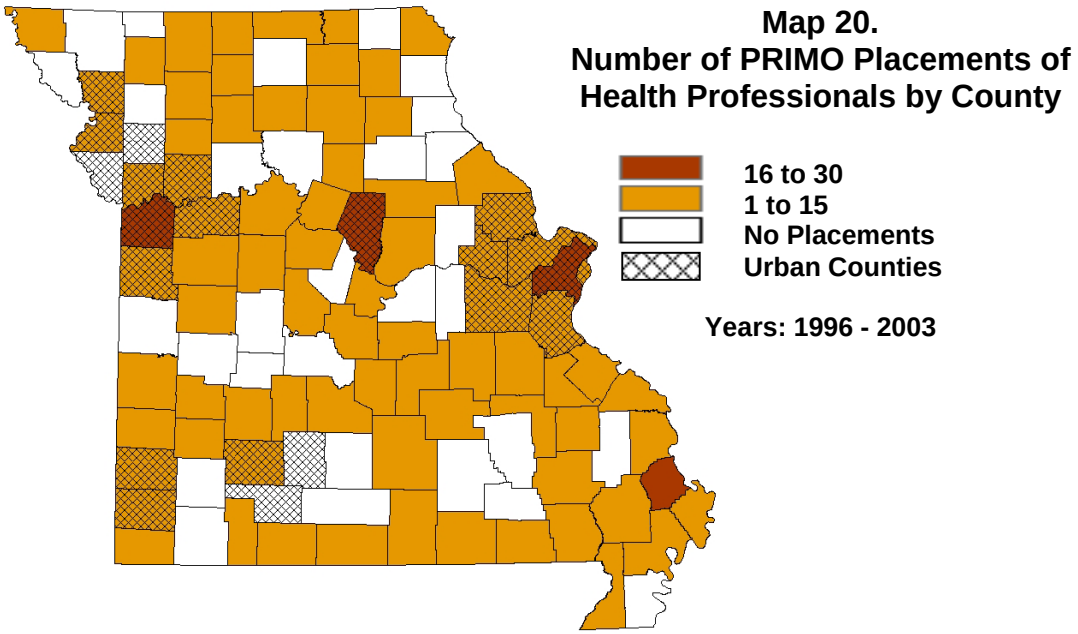


Map 19.
Number of PRIMO Students By County of Residence

21 or More
1 to 20
No Students

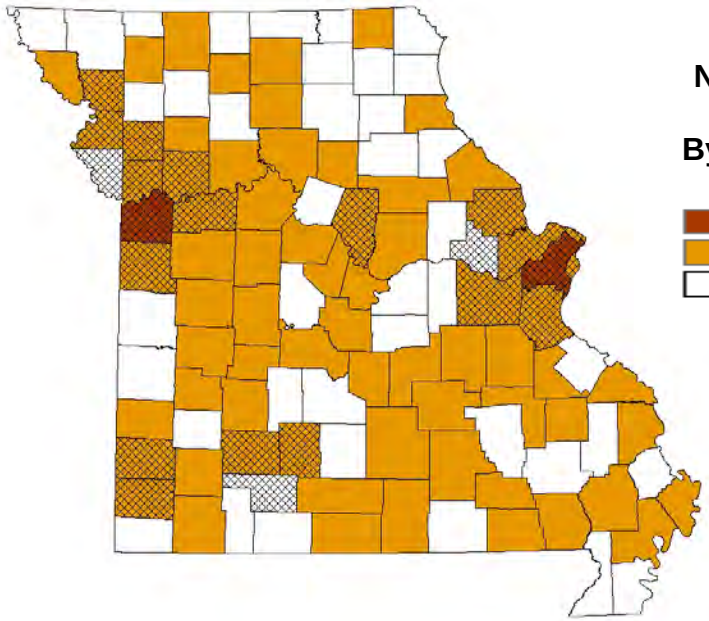
Year: 2003

Through the PRIMO initiative, there have been 228 health care professionals placed in underserved Missouri communities since the program's inception, 68 percent of which were in rural, underserved areas. In total, there have been 113 primary care physicians, 67 primary care advanced practice nurses, and 48 Bachelor of Science nurses placed by PRIMO and MORH. In the state fiscal years 2002 and 2003, 26 PRIMO participants began service in rural and underserved areas of the state. During that same time period, 30 past participants completed their obligations, and remained in their community to practice. The distribution of all PRIMO placements is shown in Map 20.



The need for nurses in rural Missouri is critical. Although the total number of nurses working in the state increases each year, the need for nurses in rural facilities continues to grow. In cooperation with the Missouri Professional and Practical Nursing Student Loan Program, the MORH has worked to increase the number of nursing professionals practicing in rural Missouri.

Since the inception of the Missouri Professional and Practical Nursing Student Loan Program, 253 of the nurses have been from rural underserved areas of the state, representing 65 percent of total recruitment efforts. If current trends continue, more than half of the 113 current nursing students will be practicing in rural communities within the next two years. Map 21 shows nurse loan program participants by county.



Map 21.
Number of Nurse Loan Participants
By County of Residence

21 or More
1 to 20
No Students

Years: 1991 - 2003

The default rates for the PRIMO loan and Professional and Practical Nurse Loan programs have declined in recent past, with the nurse loan program having the most dramatic decrease. The default rate for the student loan programs overall have been 3.3 percent for PRIMO and over 25 percent for the nurse loan program. However, since fiscal year 2002, the default rates for both programs have decreased to 1.5 percent for PRIMO and 4.5 percent for the Nurse Student Loan program. MORH, in collaboration with state partners, has refined selection criteria and utilized other recruitment/student identification programs to better select participants.

Additional placements of primary care physicians, primary care dentists, advanced practice nurses and other professional nurses have been implemented through a variety of programs. Through the Health Professional Loan Repayment Program, two physicians a year have been placed in underserved areas in the state. During the past two years there were six dentists placed, three of which are working in rural, underserved areas. The program also placed nine family nurse practitioners in underserved areas in the state.

Thirty additional physicians are placed each year through the state's J-1 Visa/State 30 Waiver program, which allows foreign medical graduates to practice in underserved areas of the state. In state fiscal years 2002 and 2003, 50 percent of the 60 J-1 Visa waivers were for physicians to practice in rural underserved counties in Missouri. Physicians placed in rural areas under this program are usually general practice physicians, pediatricians or psychiatrists. The MORH assists in the selection of participants for this program to help assure rural health care provider needs are met.

MORH works in partnership with several external partners to increase the recruitment and retention of health professionals. These external partners include the Missouri Primary Care Association, the Missouri Hospital Association, and the Area Health Education Centers. By working with these partners and the federal and state resources, the Primary Care and Rural Health unit has built programs with successes that can be measured in terms of compliance rates among participants and by the economic impact in both the home communities and in the educational institutions.

Information Clearinghouse

The MORH continues to collect and disseminate information on rural policy issues, health programs and funding opportunities. This information is provided to rural stakeholders through personal contact, community meetings and statewide organizational conferences and meetings. Access to community health coalitions and partnerships statewide provides another avenue to disseminate information and build local capacity to improve health conditions in rural parts of the state. The section's field staff and the department's Internet site: www.dhss.state.mo.us are vehicles for which informational resources, made available by the MORH, are reaching communities statewide. In addition to these efforts, a collaborative venture between MORH and CHART has resulted in the development of training sessions for rural communities interested in federal Rural Health Outreach or Rural Health Network grants from the Office of Rural Health Policy, HRSA.

Technical Assistance

The MORH continues to provide technical assistance to communities in accessing resources to improve health care system infrastructure. Resources from federal sources include the Medicare Rural Hospital Flexibility Program, Rural Health Outreach and Network Development Grants, Community Health Center Grants, Rural Health Clinic Certifications, and Telehealth Grants. These resources are available nationwide, and the MORH assists communities in Missouri to develop successful applications for these highly competitive programs.

MORH also provides technical assistance to communities on accessing state programs such as the PRIMO initiative and the provider incentive programs at both state and federal levels.

Leadership and Policy Development

The MORH has taken leadership roles in several statewide committees and advisory bodies, to provide technical assistance in rural health policy development. MORH was instrumental in implementing the Medicare Rural Hospital Flexibility Program, sits on the Missouri Rural Opportunities Advisory Council and the Advisory Committee on Childhood Immunizations, and has spearheaded the formation of an EMS Advisory Council to explore and make recommendations for EMS enhancement and networking in rural CAH communities.

Economic Impact of MORH on Rural Missouri

Rural health care in Missouri plays a vital role in providing quality health services to rural Missourians. It also makes a substantial impact on employment, income, retail sales and sales tax in rural Missouri communities and the state economy overall. At the national and state level, much emphasis is placed on controlling costs, duplication and overcapacity in health care. But the issues are very different in rural communities.

The importance of rural health care in the economic health and development of rural Missouri is and will continue to be substantial. The economic impact in state fiscal years 2002 and 2003 from federal grants and other state programs managed by MORH is estimated at over 20 million dollars. This

calculation describes the direct and indirect effect of rural health funding on state and local economic activity.

Demographics are the leading issue in that rural communities have higher proportions of elderly, children in poverty, lower income, and higher unemployment. Rural residents are more likely to be uninsured and are less likely to have access to health services in the town where they live. Yet, these rural Missouri communities are more likely to derive income from the health care industry (either directly or indirectly).

The economic impact and importance of the health care sector to the rural economy and rural economic development can be estimated using state economic multipliers obtained from the industry transaction tables in the Impact Analysis for Planning Model (IMPLAN) computer model[2].

Fund Source	Investment Amount FY 2003-2003	Multiplier	Total Financial Impact FY 2003-2003
Federal Funding	$ 991,805	2.30	$ 2,281,152
PRIMO Investments	$ 6,313,354	2.81	$ 17,740,525
Total	$ 7,305,159		$ 20,021,677

RECOMMENDATIONS FOR ACTION AND NEXT STEPS

Over the next two years, the MORH will focus on five strategic areas: Planning and Evaluation, Improving Health Care Quality, CAH Development, EMS Enhancement, and Strengthening Rural Economies.

[2] These multipliers measure total change throughout the economy from one unit of change for a given sector. The model can produce statewide results or focus on specific counties and groups of counties. The economic output multiplier (Type III) used for this report comes from the IMPLAN Missouri table 492 and 496 – Hospitals, Colleges, Universities and Schools.

Planning and Evaluation

Plan development is an ongoing and active process. A plan that allowed Missouri to participate in the MRHFP was first submitted in the spring of 1999, and received approval in the fall of 1999. This past year, the plan update focused on refining analytical tools and network development processes. MORH contracted with Southwest Missouri State University, Ozark Public Health Institute, to establish determinants of rural health for strategic planning and future operations. This study consisted of secondary data analyses, key informant interviews and phone surveys. A final report was submitted to the state on July 15, 2002.

MORH will work to update the state rural health plan and complete an operational plan that defines a system of coordinated health care services, available to all persons in rural areas, by August 2005. The plan will address the following.

1. Technical assistance programs to assist rural communities in planning and coordinating the delivery of health care services through community-based systems of care;
2. Analyses of barriers to health systems development in rural areas including but not limited to rural facilities, workforce, economies, demographics, transportation systems and other relevant factors;
3. Identification of resources for isolated rural hospitals and clinics, in danger of closing without financial assistance, and have exhausted local sources of support;
4. Estimations and projections on the economic impact of health care services in rural communities;
5. Recommendations regarding the delivery of health information and health care services in rural areas through telemedicine and telehealth resources;
6. Strategies to assure access for vulnerable, elderly populations in rural areas to health care and social services; and
7. Recommendations on the coordination and integration of mental health services in primary care settings, hospitals, emergency medical services, trauma services, rehabilitation and other health care services in rural areas;

In addition to developing an operational plan, MORH is a member of the State Bioterrorism Team to assure the inclusion of rural communities in the state's plan. As the state's emergency response plan is developed, aspects pertinent to rural health communities will be incorporated in the MORH plan to assure consistency in state activities in response to terrorist events.

Improving Health Care Quality

Critical Access Hospitals in Missouri face special challenges in the arena of quality improvement efforts. These facilities are confronted with the need to provide optimal care at a moment’s notice, but not sufficient volume to make best practices routine procedure. To facilitate the CAHs competitive edge in the health care market, the Medicare Rural Flexibility Program (MRHFP) in Missouri contracted with the Missouri Quality Improvement Organization (MQIO) to implement the Health Care Quality Program (HCQIP) in the Missouri CAHs. The MQIO worked with the CAHs on six of the top ten discharge diagnoses; acute myocardial infarction, adult onset diabetes, breast cancer, heart failure, pneumonia and influenza, and stroke. These priorities were chosen based on their public health

importance and the feasibility of measuring and improving quality. The process used compared clinical practice patterns to a standardized set of quality indicators. Data was then furnished to providers about the quality of their clinical treatment and how they compare with statewide patterns. Funding through the Invitation for Proposals (IFP) process was made available to CAH and EMS/ER systems for quality assurance and quality improvement activities, staff training, and QI network development.

During the current fiscal year, MORH will work collaboratively with the MQIO and the Missouri Hospital Association to develop a standard CAH quality program and assure all CAHs in the state are at the minimum level of quality improvement programming. MORH will also be providing additional training, through the hospital association's web training resources, and through the development of an emergency medical services training course designed specifically for rural hospital emergency room staff and local EMS providers.

CAH Development

The MORH will continue to provide technical assistance, quality improvement services and financial support to rural health care delivery systems converting to Critical Access Hospitals. Funds continue to be available to rural facilities to enhance services covered under CAH provisions. The quality of care components will serve to not only improve health outcomes in rural areas, but to restore confidence of rural populations in the local health care systems.

EMS Enhancement

As the CAHs and their communities address some of the first issues around financial stability and necessary health care services, opportunities will develop to improve Emergency Medical Systems. The MORH, along with the Missouri EMS and Hospital Associations, will develop a statewide plan for emergency medical services. The plan will include collaborative efforts to identify barriers and develop incentives to improve services, expand networks and enhance quality of care. Given the impact these systems have on rural health status, (e.g., Motor Vehicle Death Rates); this is an area that needs urgent attention.

The ability to use the AEDs provided through the RAED grant will greatly enhance the state's EMS system. Moreover, the Missouri Hospital Association and the MORH are in the process of developing a new training program for rural EMS and hospital personnel, based on the *Comprehensive Advanced Life Support* (CALS) program used in Minnesota. This program offers great potential in improving the coordination of emergency medical services in rural communities, and improving the quality of care provided by all parts of the health care system.

Strengthening Rural Economies

The MORH can help communities quantify the economic impact health care systems have on rural communities through tools it recently acquired. The tools, *Rural Health Works* and *IMPLAN*, can be used to address specific areas of concern in communities trying to address health care access issues. The tool has the capacity to provide economic impact data based on various scenarios and allows communities to determine systems they can implement and maintain.

MORH will provide this resource to the community health coalitions, partnerships and other community-based entities working to improve access to health care and by developing community-supported interventions that will also make a positive economic impact locally.

CONCLUSION

The Missouri Office of Rural Health has identified many of the leading health care issues confronting the rural communities and health care delivery systems. Unfortunately, these are not issues that can be resolved through an individual initiative, program or agency. Therefore, focus of MORH will be to create new and strengthen existing partnerships, revitalize cooperative efforts, expand knowledge base, and increase intervention effectiveness. Models that work or have strong supporting research will be studied for applicability in rural Missouri. In addition, new research activities and rural health plan development will be vigorously pursued to develop and implement effective interventions.

MORH appreciates the continued support of the Executive and Legislative Branches of the Missouri State Government. This support allows the MORH to continue providing technical assistance, information and financial resources to rural communities in the development and expansion of successful health care delivery systems.